CK SCHOOL OF PRACTICAL KNOWLEDGE- CUDDALORE-1

Common Half Yearly Examination – 2022

Model Question Paper - 01

Std : XII **Marks : 70**

Subject : Chemistry **Time : 3 hrs**

PART - I

Choose the best answer : **15 ×1 = 15**

1) The crystal with a metal deficiency defect is

a) NaCl b) FeO c) ZnO d) KCl

2) The number of electrons that have a total charge of 965 coulomb is

a) 6.022×10^{-34} b) 6.022×10^{21} c) 6.022×10^{22} d) 6.022×10^{23}

3) Which of the following is a copolymer ?

a) Orlon b) PVC c) Teflon d) PHBV

4) which one of the following is not fersible ?

a) $Zn(s) + Cu^{2+}(aq) \longrightarrow Cu(s) + Zn^{2+}(aq)$

b) $Cu(s) + Zn^{2+}(aq) \longrightarrow Zn(s) + Cu^{2}(aq)$

c) $Cu(s) + 2Ag^{+}(aq) \longrightarrow 2Ag(s) + Cu^{2+}(aq)$

d) $Fe(s) + Cu^{2+}(aq) \longrightarrow Cu(s + Fe^{2+}(aq)$

5) Among the following the correct order of acidity is

a) $HClO_2 < HClO < HClO_3 < HClO_4$ b) $HClO_4 < HClO_2 < HClO < HClO_3$

c) $HClO_3 < HClO_4 < HClO_2 < HClO$ d) $HClO > HClO_2 > HClO_3 > HClO_4$

6) The transition element exhibit only +3 oxidation state is

a) Cr b) Mn c) Tc d) Sc

7) Benzoic acid $\xrightarrow{PCl_5}$ A $\xrightarrow[\text{Anhy. } AlCl_3]{\text{Benzene}}$ B, then B is

a) Acetone b) acetophenone c) benzophenone d) benzaldehyde

8) The rate constant of a reaction is $5.8 \times 10^{-2}\ S^{-1}$ the order of the reaction is

a) First order b) zero order c) second order d) third order

9) The trialkyl borate on reaction with sodium hydride in tetrahydrofuran to form a co-ordination compound is _____

a) $Na[BH(OR)_3]$ b) $Na[(OR)_3]$ c) $Na[B(OR)_3]$ d) $Na[BH(OR)]$

10) Which one of the following is the strongest acid ?

a) 2 – nitrophenol b) 4 - chlorophenol c) 4 - nitrophenol d) 3 - nitrophenol

11) Which one of the following complex is not an anionic complex ?

a) $K_4[Fe(CN)_6]$ b) $K_3[Fe(CN)_6]$

c) $[Co(NH_3)_3Cl_3]$ d) $[Ni(CN)_4]^{2-}$

12) The P^H of an aqueous solution is zero. The solution is

a) slightly acidic b) strongly acidic c) neutral d) basic

13) The self condensation of two molecules of propanenitrile in the presence of sodium and ether to form 3 – imino – – methyl pentanenitrile. This reaction is known as _____
   a) Levine and Hauser acetylation
   b) Thorpe nitr le condensation
   c) Sabatier- Mailhe method
   d) Gomberg reaction
14) Which of the following characteristics are associated with adsorption ?
   a) ΔG and ΔH are negative but ΔS is positive
   b) ΔG and ΔS are negative but ΔH is positive
   c) ΔG is negative but ΔH and ΔS are positive
   d) ΔG, ΔH and ΔS all are negative
15) The IUPAC name of C_6H_5NC and C_6H_5CN are
   a) Benzenenitrile and phenyl carbylamine
   b) phenyl carbylamine and benzonitrile
   c) phenyl carbylamine and benzene carbonitrile
   d) benzene carbonitrile and phenyl cyanide.

PART – I

Answer any 6 questions : Q.No. 24 is compulsory 6 × 2 = 12

16) What is auto reduction ?
17) Give the ses of neon.
18) Transition elements exhibit variable oxidation state. Why ?
19) If the radius ratio of the compound is b/w 0.414 – 0.732, find out the co-ordination number and structure of a compound
20) Give two examples for zero order reaction
21) Calculate the P^H of 0.1 M CH_3COONa solution. (Pka for CH_3COOH is 4.74)
22) Convert glycol into 1,4-dioxane
23) Write a note on denatu ion of proteins.
24) Identify A and B

$$C_6H_5NO_2 \xrightarrow[6\ (H)]{Sn/HCl} A \xrightarrow[KOH]{Br_2} B$$

PART - III

Answer any 6 quest ons : Q.NO. 33 is compulsory 6 × 3 = 18

25) Write a note on anomalous propert es of the first element of p-block.
26) Mention the consequences of lanthanoid contraction.
27) In an tetrahedral field, draw the figure to show splitting of d-orbitals
28) The dissociation of water is an endothermic reaction. Why ?
29) What is intercalation ?
30) Write Tollen's reagent test.
31) Name the vitamins whose deficiency cause i) cheilosis ii) ber-beri

32) What are bio – degradable polymers? Give an example.

33) Identify the enzyme catalyst in the following reactions.

a) Oxidation of ethanol into acetic acid

b) Hydrolysis of starch into maltose

c) Hydrolysis of urea.

PART – IV

Answer the following : **5 × 5 = 25**

34) a) i) Describe a method for refining nickel.

ii) Draw the structure of orthophosphoric acid and mention its basicity.

(or)

b) i) Write a note on Fischer – Tropsch synthesis.

ii) Write a note on Holme's signal.

35) a) W ite the main assumption of VBT.

(or)

(b) i) Explain Frenkel defect.

ii) Identify the autocatalyst in the following

a) $CH_3COOC_2H_5 + H_2O \longrightarrow CH_3COOH + C_2H_5OH$

b) $2AsH_3 \longrightarrow 2As + 3H_2$

36) a) i) Explain the effect of surface area of the reactant.

ii) Derive Henderson – Hasselbalch equation.

(or)

b) Explain lead storage batte y.

37) a) i) Name the factors affecting adsorption.

ii) Write swern oxida ion of 1^0 alcohol.

(or)

b) i) How is phenol prepared from isopropyl benzene ?

ii) Write a note on vulcanization of rubber.

38) a) Write the me hanism of esterification.

(or)

b) i) Write Gabriel phthalimide synthesis.

ii) Write retention reaction of diazo group.

By,

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PGT CHEMISTRY

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